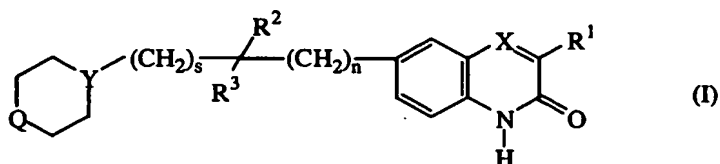


CLAIMS

1. A compound of formula (I),



the *N*-oxide forms, the addition salts and the stereo-chemically isomeric forms thereof, wherein

10 *n* is 0 or 1;
s is 0 or 1;

X is -N= or -CR⁴=, wherein R⁴ is hydrogen or taken together with R¹ may form a bivalent radical of formula -CH=CH-CH=CH-;

15 *Y* is -N< or -CH<;

Q is -NH-, -O-, -C(O)-, -CH₂-CH₂- or -CHR⁵-,
 wherein R⁵ is hydrogen, hydroxy, C₁₋₆alkyl, arylC₁₋₆alkyl, C₁₋₆alkyloxycarbonyl,
 20 C₁₋₆alkyloxyC₁₋₆alkylamino or haloindazolyl;

R¹ is C₁₋₆alkyl or thienyl;

R² is hydrogen or taken together with R³ may form =O;

25 R³ is hydrogen, C₁₋₆alkyl or a radical selected from

- 30
- NR⁶R⁷ (a-1),
 - O-H (a-2),
 - O-R⁸ (a-3),
 - S- R⁹ (a-4), or
 - C≡N (a-5),

wherein

R⁶ is -CHO, C₁₋₆alkyl, hydroxyC₁₋₆alkyl, C₁₋₆alkylcarbonyl,
 di(C₁₋₆alkyl)aminoC₁₋₆alkyl, C₁₋₆alkylcarbonylaminoC₁₋₆alkyl,

piperidiny1C₁₋₆alkyl, piperidiny1C₁₋₆alkylaminocarbonyl, C₁₋₆alkyloxy,
 C₁₋₆alkyloxyC₁₋₆alkyl, thienylC₁₋₆alkyl, pyrrolylC₁₋₆alkyl,
 arylC₁₋₆alkylpiperidiny1, arylcarbonylC₁₋₆alkyl, arylcarbonylpiperidiny1C₁₋₆alkyl,
 haloindozolylpiperidiny1C₁₋₆alkyl, or arylC₁₋₆alkyl(C₁₋₆alkyl)aminoC₁₋₆alkyl; and
 5 R⁷ is hydrogen or C₁₋₆alkyl;
 R⁸ is C₁₋₆alkyl, C₁₋₆alkylcarbonyl or di(C₁₋₆alkyl)aminoC₁₋₆alkyl; and
 R⁹ is di(C₁₋₆alkyl)aminoC₁₋₆alkyl;

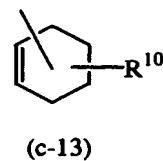
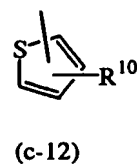
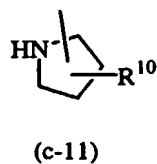
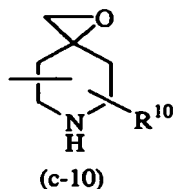
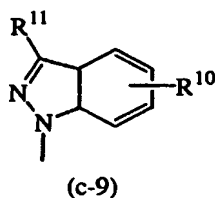
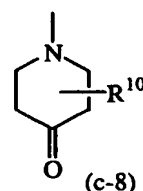
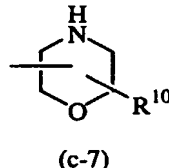
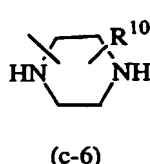
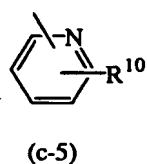
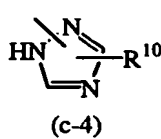
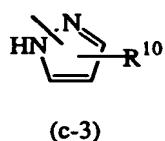
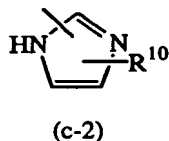
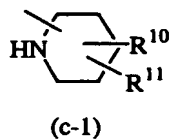
or R³ is a group of formula



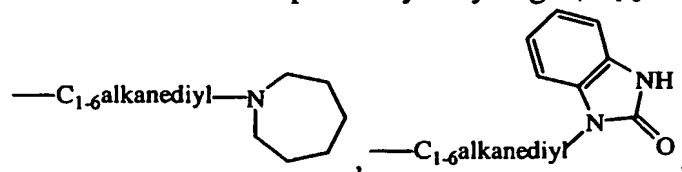
wherein

t is 0, 1 or 2;

Z is a heterocyclic ring system selected from



wherein each R¹⁰ independently is hydrogen, C₁₋₆alkyl, aminocarbonyl, hydroxy,

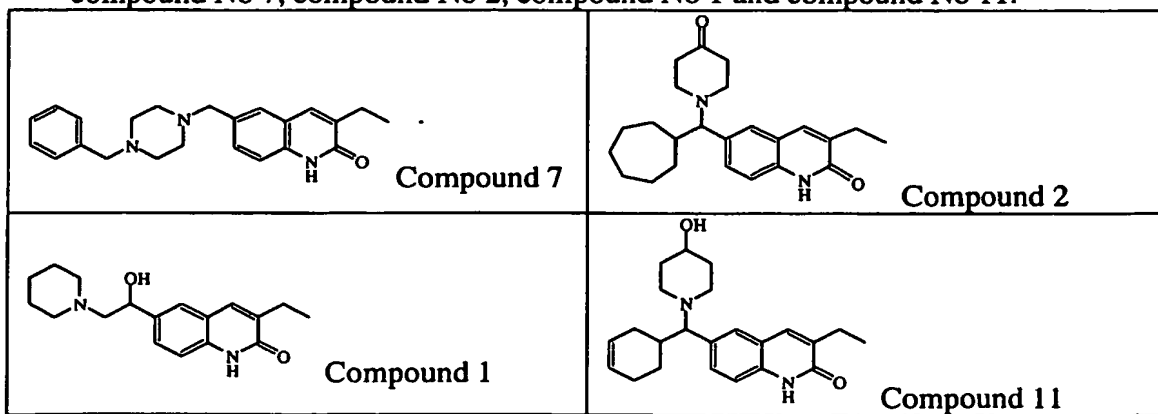


C₁₋₆alkyloxyC₁₋₆alkyl, C₁₋₆alkyloxyC₁₋₆alkylamino, di(phenylC₂₋₆alkenyl),
 piperidiny1C₁₋₆alkyl, C₃₋₁₀cycloalkyl, C₃₋₁₀cycloalkylC₁₋₆alkyl,
 aryloxy(hydroxy)C₁₋₆alkyl, haloindazolyl, arylC₁₋₆alkyl, arylC₂₋₆alkenyl,
 morpholino, C₁₋₆alkylimidazolyl, or pyridiny1C₁₋₆alkylamino;

each R¹¹ independently is hydrogen, hydroxy, piperidinyl or aryl;

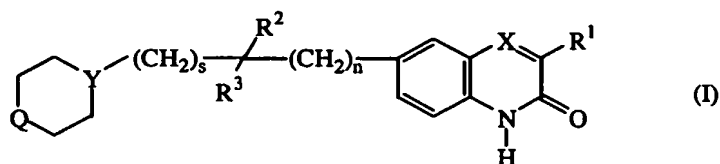
aryl is phenyl or phenyl substituted with halo, C₁₋₆alkyl or C₁₋₆alkyloxy;

- 5 with the proviso that 6-(cyclohexyl-1*H*-imidazol-1-ylmethyl)-3-methyl-2(1*H*)-quinoxalinone is not included.
2. A compound as claimed in claim 1 wherein X is -N= or -CH=; R¹ is C₁₋₆alkyl; R³ is hydrogen, C₁₋₆alkyl, a radical selected from (a-1), (a-2), (a-3) or (a-4) or a group of
 10 formula (b-1); R⁶ is di(C₁₋₆alkyl)aminoC₁₋₆alkyl or C₁₋₆alkyloxyC₁₋₆alkyl; R⁷ is hydrogen; R⁸ is di(C₁₋₆alkyl)aminoC₁₋₆alkyl; t is 0 or 2; Z is a heterocyclic ring system selected from (c-1), (c-5), (c-6), (c-8), (c-10), (c-12) or (c-13); each R¹⁰ independently is hydrogen, C₁₋₆alkyl, hydroxy, C₁₋₆alkyloxyC₁₋₆alkyl, C₁₋₆alkyloxyC₁₋₆alkylamino, morpholino, C₁₋₆alkylimidazolyl, or
 15 pyridinylC₁₋₆alkylamino; each R¹¹ independently is hydrogen or hydroxy; and aryl is phenyl.
3. A compound according to claim 1 and 2 wherein n is 0; X is CH; Q is -NH-, -CH₂-CH₂- or -CHR⁵-, wherein R⁵ is hydrogen, hydroxy, or arylC₁₋₆alkyl; R¹ is C₁₋₆alkyl; R² is hydrogen; R³ is hydrogen, hydroxy or a group of formula (b-1); t is 0; Z is a heterocyclic ring system selected from (c-8) or (c-13); each R¹⁰ independently is hydrogen; and aryl is phenyl.
4. A compound according to claim 1, 2 and 3 wherein the compound is selected from
 25 compound No 7, compound No 2, compound No 1 and compound No 11.



5. A compound as claimed in any of claims 1 to 4 for use as a medicine.

6. A pharmaceutical composition comprising pharmaceutically acceptable carriers and as an active ingredient a therapeutically effective amount of a compound as claimed in claim 1 to 4.
- 5 7. A process of preparing a pharmaceutical composition as claimed in claim 6 wherein the pharmaceutically acceptable carriers and a compound as claimed in claim 1 to 4 are intimately mixed.
8. Use of a compound for the manufacture of a medicament for the treatment of a
- 10 PARP mediated disorder, wherein the compound is a compound of formula (I)



- 15 the *N*-oxide forms, the pharmaceutically acceptable addition salts and the stereochemically isomeric forms thereof, wherein

n is 0 or 1;

s is 0 or 1;

20

X is $-N=$ or $-CR^4=$, wherein R^4 is hydrogen or taken together with R^1 may form a bivalent radical of formula $-CH=CH-CH=CH-$;

Y is $-N<$ or $-CH<$;

25

Q is $-NH-$, $-O-$, $-C(O)-$, $-CH_2-CH_2-$ or $-CHR^5-$,
wherein R^5 is hydrogen, hydroxy, C_{1-6} alkyl, aryl C_{1-6} alkyl, C_{1-6} alkyloxycarbonyl, C_{1-6} alkyloxy C_{1-6} alkylamino or haloindazolyl;

30 R^1 is C_{1-6} alkyl or thienyl;

R^2 is hydrogen or taken together with R^3 may form $=O$;

R^3 is hydrogen, C_{1-6} alkyl or a radical selected from

-52-

- NR⁶R⁷ (a-1),
 -O-H (a-2),
 -O-R⁸ (a-3),
 -S-R⁹ (a-4), or
 —C≡N (a-5),

5

wherein

R⁶ is -CHO, C₁₋₆alkyl, hydroxyC₁₋₆alkyl, C₁₋₆alkylcarbonyl,
 di(C₁₋₆alkyl)aminoC₁₋₆alkyl, C₁₋₆alkylcarbonylaminoC₁₋₆alkyl,
 piperidinyC₁₋₆alkyl, piperidinyC₁₋₆alkylaminocarbonyl, C₁₋₆alkyloxy,
 C₁₋₆alkyloxyC₁₋₆alkyl, thienylC₁₋₆alkyl, pyrrolylC₁₋₆alkyl,
 arylC₁₋₆alkylpiperidiny, arylcarbonylC₁₋₆alkyl, arylcarbonylpiperidinyC₁₋₆alkyl,
 haloindozolylpiperidinyC₁₋₆alkyl, or arylC₁₋₆alkyl(C₁₋₆alkyl)aminoC₁₋₆alkyl; and
 R⁷ is hydrogen or C₁₋₆alkyl;

10

R⁸ is C₁₋₆alkyl, C₁₋₆alkylcarbonyl or di(C₁₋₆alkyl)aminoC₁₋₆alkyl; and

15

R⁹ is di(C₁₋₆alkyl)aminoC₁₋₆alkyl;

or R³ is a group of formula



wherein

t is 0, 1 or 2;

20

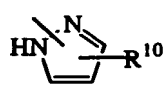
Z is a heterocyclic ring system selected from



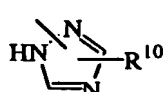
(c-1)



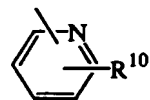
(c-2)



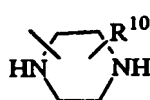
(c-3)



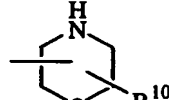
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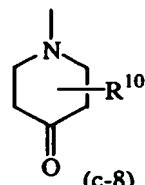
(c-5)



(c-6)

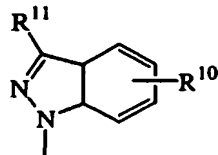


(c-7)

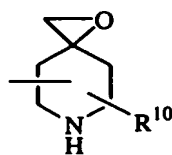


(c-8)

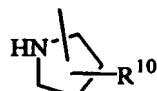
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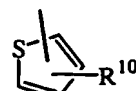
(c-9)



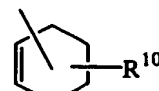
(c-10)



(c-11)

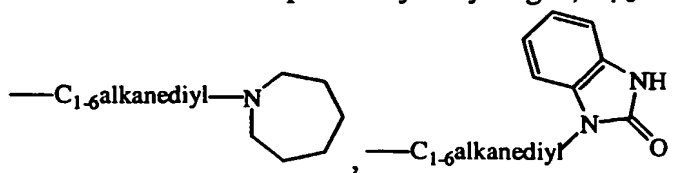


(c-12)



(c-13)

wherein each R^{10} independently is hydrogen, C_{1-6} alkyl, aminocarbonyl, hydroxy,



C_{1-6} alkyloxy C_{1-6} alkyl, C_{1-6} alkyloxy C_{1-6} alkylamino, di(phenyl C_{2-6} alkenyl),
 piperidinyl C_{1-6} alkyl, C_{3-10} cycloalkyl, C_{3-10} cycloalkyl C_{1-6} alkyl,
 5 aryloxy(hydroxy) C_{1-6} alkyl, haloindazolyl, aryl C_{1-6} alkyl, aryl C_{2-6} alkenyl,
 morpholino, C_{1-6} alkylimidazolyl, or pyridinyl C_{1-6} alkylamino;
 each R^{11} independently is hydrogen, hydroxy, piperidinyl or aryl;

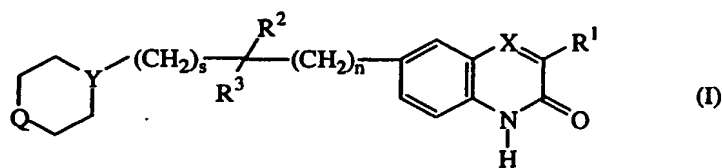
aryl is phenyl or phenyl substituted with halo, C_{1-6} alkyl, or C_{1-6} alkyloxy.

9. Use according to claim 8 of a PARP inhibitor of formula (I) for the manufacture of
 a medicament for the treatment of a PARP-1 mediated disorder

10. Use according to claim 8 and 9 wherein the treatment involves chemosensitization.

11. Use according to claims 8 and 9 wherein the treatment involves radiosensitization.

12. A combination of a compound with a chemotherapeutic agent wherein said
 compound is a compound of formula (I)



the *N*-oxide forms, the pharmaceutically acceptable addition salts and the stereo-
 chemically isomeric forms thereof, wherein

n is 0 or 1;

s is 0 or 1;

X is $-N=$ or $-CR^4=$, wherein R^4 is hydrogen or taken together with R^1 may form a
 bivalent radical of formula $-CH=CH-CH=CH-$;

Y is $-\text{N}<$ or $-\text{CH}<$;

Q is $-\text{NH}-$, $-\text{O}-$, $-\text{C}(\text{O})-$, $-\text{CH}_2-\text{CH}_2-$ or $-\text{CHR}^5-$,

wherein R^5 is hydrogen, hydroxy, C_{1-6} alkyl, aryl C_{1-6} alkyl, C_{1-6} alkyloxycarbonyl,

5 C_{1-6} alkyloxy C_{1-6} alkylamino or haloindazolyl;

R^1 is C_{1-6} alkyl or thienyl;

R^2 is hydrogen or taken together with R^3 may form $=\text{O}$;

10

R^3 is hydrogen, C_{1-6} alkyl or a radical selected from

$-\text{NR}^6\text{R}^7$ (a-1),

$-\text{O}-\text{H}$ (a-2),

$-\text{O}-\text{R}^8$ (a-3),

15 $-\text{S}-\text{R}^9$ (a-4), or

$-\text{C}\equiv\text{N}$ (a-5),

wherein

R^6 is $-\text{CHO}$, C_{1-6} alkyl, hydroxy C_{1-6} alkyl, C_{1-6} alkylcarbonyl,

di(C_{1-6} alkyl)amino C_{1-6} alkyl, C_{1-6} alkylcarbonylamino C_{1-6} alkyl,

20 piperidinyl C_{1-6} alkyl, piperidinyl C_{1-6} alkylaminocarbonyl, C_{1-6} alkyloxy,

C_{1-6} alkyloxy C_{1-6} alkyl, thienyl C_{1-6} alkyl, pyrrolyl C_{1-6} alkyl,

aryl C_{1-6} alkylpiperidinyl, arylcarbonyl C_{1-6} alkyl, arylcarbonylpiperidinyl C_{1-6} alkyl,

haloindazolylpiperidinyl C_{1-6} alkyl, or aryl C_{1-6} alkyl(C_{1-6} alkyl)amino C_{1-6} alkyl; and

R^7 is hydrogen or C_{1-6} alkyl;

25 R^8 is C_{1-6} alkyl, C_{1-6} alkylcarbonyl or di(C_{1-6} alkyl)amino C_{1-6} alkyl; and

R^9 is di(C_{1-6} alkyl)amino C_{1-6} alkyl;

or R^3 is a group of formula

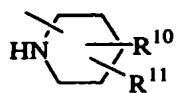
$-(\text{CH}_2)_t-\text{Z}-$ (b-1),

wherein

30

t is 0, 1 or 2;

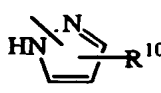
Z is a heterocyclic ring system selected from



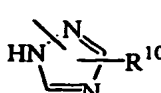
(c-1)



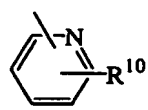
(c-2)



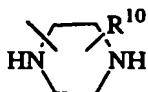
(c-3)



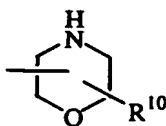
(c-4)



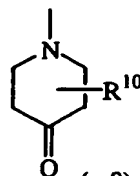
(c-5)



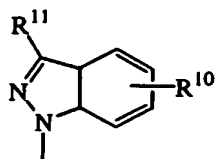
(c-6)



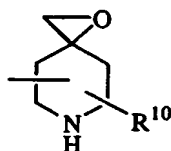
(c-7)



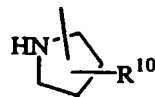
(c-8)



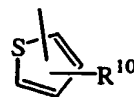
(c-9)



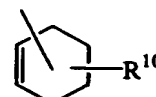
(c-10)



(c-11)

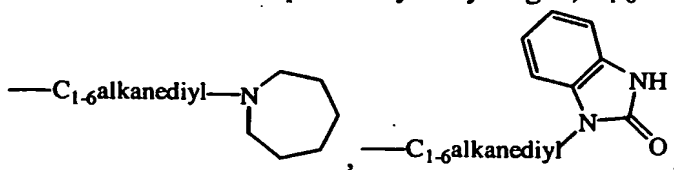


(c-12)



(c-13)

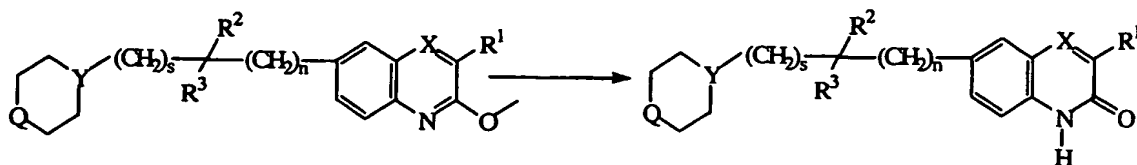
5 wherein each R¹⁰ independently is hydrogen, C₁₋₆alkyl, aminocarbonyl, hydroxy,



C₁₋₆alkyloxyC₁₋₆alkyl, C₁₋₆alkyloxyC₁₋₆alkylamino, di(phenylC₂₋₆alkenyl), piperidinylC₁₋₆alkyl, C₃₋₁₀cycloalkyl, C₃₋₁₀cycloalkylC₁₋₆alkyl, aryloxy(hydroxy)C₁₋₆alkyl, haloindazolyl, arylC₁₋₆alkyl, arylC₂₋₆alkenyl, morpholino, C₁₋₆alkylimidazolyl, or pyridinylC₁₋₆alkylamino; each R¹¹ independently is hydrogen, hydroxy, piperidinyl or aryl;

aryl is phenyl or phenyl substituted with halo, C₁₋₆alkyl or C₁₋₆alkyloxy.

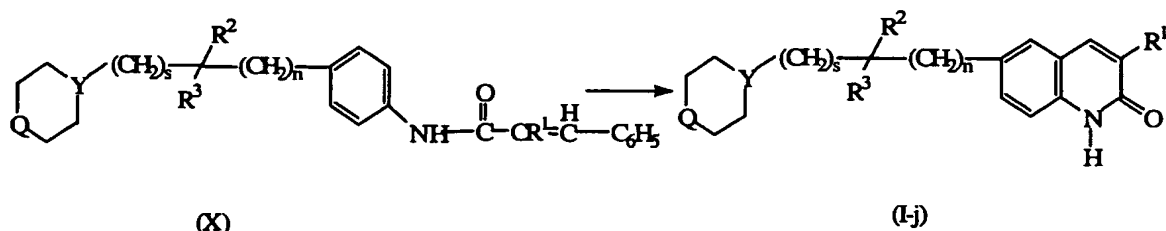
15 13. A process for preparing a compound as claimed in claim 1, characterized by
a) the hydrolysis of intermediates of formula (VIII), according to art-known methods,
by submitting the intermediates of formula (VIII) to appropriate reagents, such as,
tinchloride, acetic acid and hydrochloric acid, in the presence of a reaction inert
solvent, e.g. tetrahydrofuran.



(VII D)

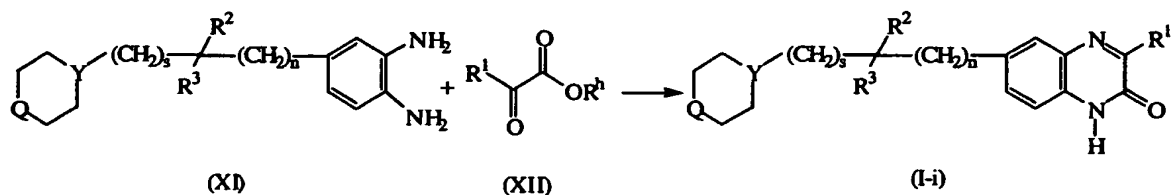
I

- b) the cyclization of intermediates of formula (X), according to art-known cyclizing procedures into compounds of formula (I) wherein X is CH herein referred to as compounds of formula (I-j), preferably in the presence of a suitable Lewis Acid, e.g. aluminum chloride either neat or in a suitable solvent such as, for example, an aromatic hydrocarbon, e.g. benzene, chlorobenzene, methylbenzene and the like; halogenated hydrocarbons, e.g. trichloromethane, tetrachloromethane and the like; an ether, e.g. tetrahydrofuran, 1,4-dioxane and the like or mixtures of such solvents.



10

- c) the condensation of an appropriate ortho-benzenediamine of formula (XI) with an ester of formula (XII) into compounds of formula (I), wherein X is N and R² taken together with R³ forms =O, herein referred to as compounds of formula (I-a-1), in the presence of a carboxylic acid, e.g. acetic acid and the like, a mineral acid such as, for example hydrochloric acid, sulfuric acid, or a sulfonic acid such as, for example, methanesulfonic acid, benzenesulfonic acid, 4-methylbenzenesulfonic acid and the like.



20